

WB & ME Walls

Seascape Grove,
Belle O'Connor Street,
South West Rocks, Stage 1
Bushfire Hazard Assessment

August 2006

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Reference: 0043974 Bushfire

For and on behalf of
Environmental Resources Management
Australia

Approved by: Christine Allen

Signed:



Position: Project Director

Date: 10 August 2006

This report was prepared in accordance with the scope of services set out in the contract between Environmental Resources Management Australia Pty Ltd ACN 002 773 248 (ERM) and WB & ME Walls. To the best of our knowledge, the proposal presented herein accurately reflects the intentions of WB & ME Walls when the report was printed. However, the application of conditions of approval or impacts of unanticipated future events could modify the outcomes described in this document. In preparing the report, ERM used data, surveys, analyses, designs, plans and other information provided by the individuals and organisations referenced herein. While checks were undertaken to ensure that such materials were the correct and current versions of the materials provided, except as otherwise stated, ERM did not independently verify the accuracy or completeness of these information sources.

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1

INTRODUCTION

1.1

BACKGROUND

WB & ME Walls commissioned Environmental Resources Management Australia Pty Ltd (ERM) to undertake a bushfire hazard assessment for the proposed 'Seascape Grove' residential subdivision, Belle O'Connor Street, South West Rocks.

The site (Lot 21 DP 1071657) has been identified as bushfire-prone land, being within 100 metres of vegetated land mapped as presenting a high bushfire risk.

This report was prepared in accordance with NSW Rural Fire Service (2001) guidelines for submission with the development application for the proposed subdivision.

1.2

PROPOSED DEVELOPMENT

The development proposal comprises Stage 1(b) of a residential subdivision of Lot 21 DP 1071657, Belle O'Connor Street, South West Rocks (the site). Stage 1(a) was approved by Kempsey Council in 2004 and amended in 2005 to be consistent with the Master Plan for the site. Ancillary works to the subdivision on Lot 21 DP 1071657 are also proposed in Lot 22 DP 1071657, including drainage, a temporary construction access and a bushfire perimeter road.

The proponent is seeking project approval for a 108 lot residential subdivision to be constructed in four stages (precincts). Stage 1c will be subject to a future application and include further residential subdivision and an integrated housing precinct.

The development footprint and land use is consistent with the Master Plan approved by NSW DoP for the site.

2

METHODOLOGY

2.1

GENERAL APPROACH

The bushfire hazard assessment methodology utilised is based upon Appendix 2 and 3 of NSW Rural Fire Service guidelines (2001). The main tasks in conducting the bushfire hazard assessment were:

- identifying the presence and extent of bushfire prone land in and adjacent to the proposed development site;
- identifying the distribution and structure of vegetation communities within and adjacent to the proposed development site;
- assessing the slope of the site and land in adjacent areas;
- using the above information to assess the bushfire risk posed by relevant bushfire hazards (ie adjacent vegetation); and
- determine appropriate levels of building construction for the proposed development to withstand bushfire attack.

2.2

ASSESSING BUSHFIRE-PRONE LAND

Bushfire hazard mapping held by Kempsey Shire Council was used to define bushfire prone land in the vicinity of the lot.

NSW Rural Fire Service (2001) defines “*bushfire-prone land*” as “*those areas within or within 100 metres of high or medium bushfire hazards, or areas within or within 30 metres of low bushfire hazards*”. Such areas do not include existing residential areas or waterbodies.

2.3

FIELD SURVEY OF VEGETATION AND SLOPE

Vegetation within 140 metres of the proposed development area was assessed in the field.

In accordance with NSW Rural Fire Service (2001), slope was assessed using the following guiding principle:

"In assessing slope, there may be found a variety of slopes covering different distances. Determine the gradient which will most significantly influence the fire behaviour of the site having regard to vegetation found".

The slope characteristics of the site and surrounding areas within 100 metres were determined using 10 metre contour intervals from the Coffs Harbour 1:25,000 topographic map and verified in the field.

2.4 *ASSESSMENT OF BUSHFIRE RISK*

The risk posed by the proximity of the development to the nearest bushfire hazard was assessed in terms of NSW Rural Fire Service (2001) requirements for special protection development. This included analysis of current asset protection zones for adjacent dwellings, levels of building construction required and the overall bushfire suitability of the development in the context of the proposed location.

3

ASSESSMENT RESULTS

3.1

EXTENT OF BUSHFIRE-PRONE LAND

Bushfire hazard mapping indicated that the site was bushfire prone land, therefore consideration of bushfire hazards is required.

3.2

EXISTING DEVELOPMENT AND VEGETATION ON AND ADJACENT TO THE SITE

The site currently contains an existing dwelling and associated buildings. It also contains an existing 23-lot subdivision.

Historically the site was used for rural land use and was predominantly cleared of native vegetation for grazing purposes. Some mature eucalypts remain scattered over the property.

A stand of forest remains on the upper slopes of the ridgeline in the south of the site. Council water reservoirs are also located on the ridgeline. This area is zoned 7(a) Scenic Protection under the *Kempsey LEP 1987*.

The following land uses are adjacent to the site:

- to the west: a 20 metre wide road reserve bound by urban development (Oceanside Estate);
- to the north: a 20 metre wide road reserve bound by the South West Rocks golf course (to the northeast), with one rural residential property located directly north of the site and a rural property with residence to the northwest;
- to the east: managed rural land that is primarily cleared for grazing; and
- to the south: rural residential and scenic protection areas.

Vegetation and the relevant bushfire hazard grouping for land adjacent to the site can be summarised as:

- to the west: urban land, no bushfire hazard;
- to the north: the golf course and the rural residential allotment adjacent to the access road to the SWR STP represents managed grassland (Group 3 vegetation). The adjacent rural land is primarily closed (mixed species) heathland in various states of disturbance. This vegetation was classed as Group 2 vegetation;

- to the east: managed grazing land with most remnant vegetation removed. A stand of Scribbly Gum trees are located adjacent to the eastern boundary of the subdivision area. This vegetation has been subject to thinning of mature trees and ongoing fuel removal for rural purposes. Understorey is grassy. This vegetation was therefore classed as woodland (Group 2) vegetation; and
- to the south: Vegetation dominated by Blackbutt, Scribbly Gum and Stringybark tree species with shrubby understorey. The canopy cover through these areas varies between 30 and 50%. This is therefore open forest (Group 1) vegetation. Some areas within the site and around dwellings on adjacent rural residential properties have been subject to underscrubbing and thinning of mature vegetation.

The extent of vegetation communities are outlined in *Figure 3.1*.

3.3 SLOPE

The proposed subdivision areas are located on the mid to lower slopes of the site. Slopes within the development range from approximately 1 to 8 degrees.

The relevant slopes to vegetation of Group 1 and 2 hazard rating are:

- to the north: the land lies downslope of the site, though at a slight grade only. The slope over 140 metres is between 0 and 5 degrees downslope, typically 1 to 2 degrees;
- to the east: the development lies downslope of the remnant vegetation, at a slope of between 0 and 5 degrees; and
- to the south: the vegetation is located upslope from the proposed development area. The slope between the residential areas and forested ridgeline vegetation is between 5 and 10 degrees.

3.4 ASSET PROTECTION ZONE REQUIREMENTS

The required Asset Protection Zones (APZs) were determined in accordance with NSW Rural Fire Service (2001) guidelines.

These are outlined in the table below:

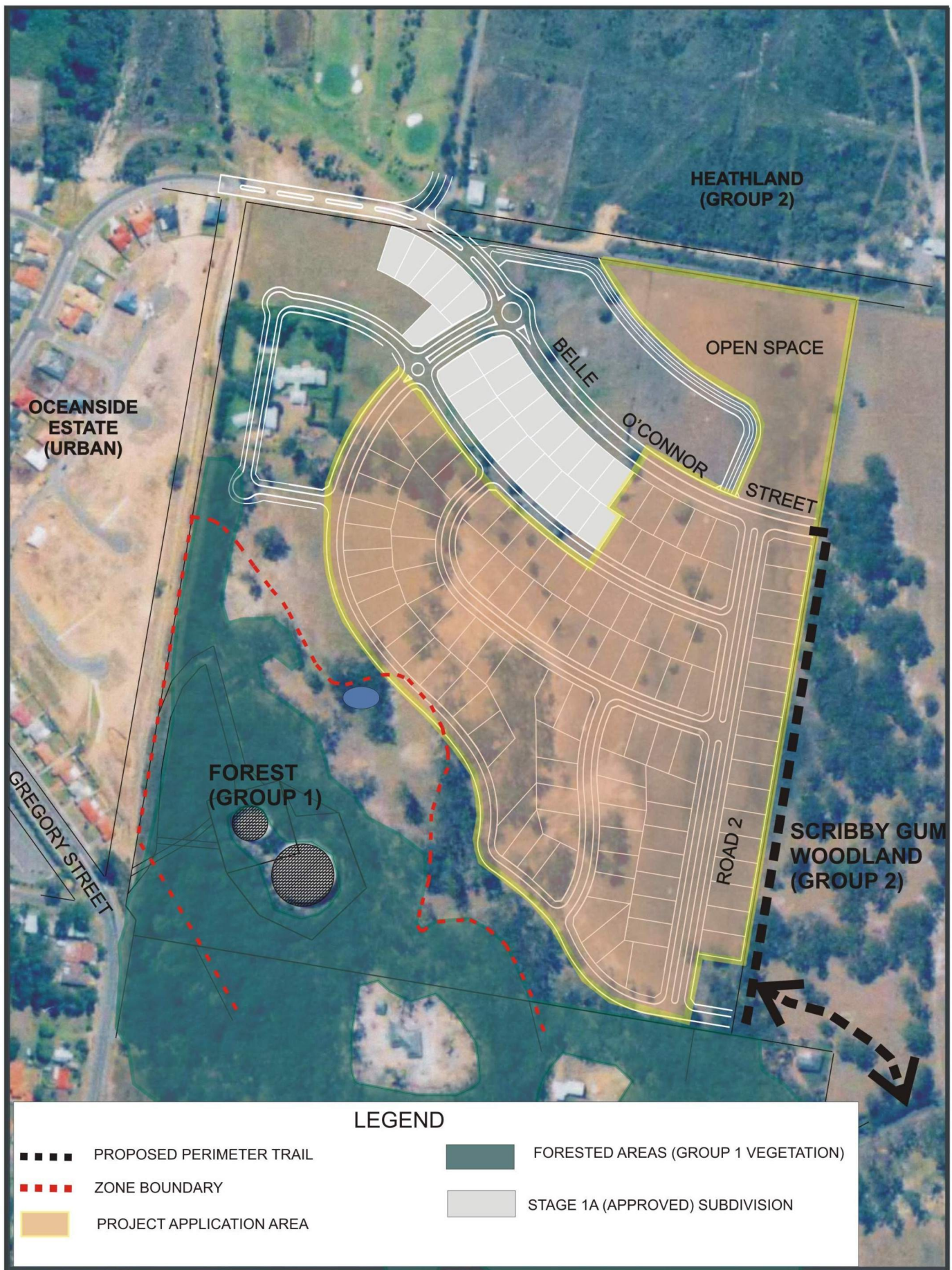


Figure 3.1

Vegetation Communities Adjacent to the Site



0 100m

Proposed Subdivision, Seascapes Grove South West Rocks
WB & ME Wall
Base Image: King & Campbell (2005)

Table 1 **Required Asset Protection Zones**

Direction from Residential Land	Required Asset Protection Zone (APZ) (total)	Inner Protection Area (IPA)	Outer Protection Area (OPA)
West (Oceanside Estate)	0	-	-
Northeast (Golf Course)	20m	20m	-
North (Heathland)	35m	25m	10m
East (Rural Land)	30m	20m	10m
South (Rural Residential/Scenic)	20m	20m	-

The total APZ incorporates two areas, being:

- **Inner Protection Area:** Located immediately adjacent to the development, this area is maintained free of combustible materials (eg woodpiles) and with trees that are well spread out and do not form a continuous canopy; and
- **Outer Protection Area:** Located as a buffer area between the hazard and the IPA, this area is managed as a fuel-reduced zone with a discontinuous canopy to reduce the effects of direct flame, radiant heat and ember attack on the IPA.

The proposed APZ arrangement is indicated in the attached plan *Bushfire Protection Measures and Asset Protection Zones* (King & Campbell 2006). This allows for the location of the required APZs in the following manner:

- **to the north:** within the open space area and road reserves of the site;
- **to the east:** It is proposed to create a 25 metre wide easement within the adjacent allotment (Lot 22 DP 1071657) along the common boundary. Lot 22 is also owned by the proponent. This will implement the following:
 - a 10-metre outer protection zone within the existing Scribbly Gum woodland vegetation;
 - establishment and maintenance of a perimeter access track (see below) and 15m of the required 20m Inner Protection Area along this boundary to compliment the 5m building setbacks to the eastern boundary (rear) of each proposed new allotment. This easement will also contain stormwater control devices (grassed swale) and some filling required for the development; and
- **to the south:** the APZ is positioned so that no clearing of remnant mature trees within the 7(a) Scenic Protection zone is required. Where the APZ lies within proposed residential areas subject to concept approval, it should be incorporated into dwelling allotments where appropriate.

3.5

VEHICULAR ACCESS

Primary vehicular access is provided from the west via Belle O'Connor Street. A second access, for emergency use only, be provided through the property to the east connecting to Arakoon Road. This would be formalised via an access easement that would also extend along the eastern side of the common boundary between the two properties.

It is proposed that vehicular access to hazard interfaces will be provided through the following perimeter roads:

- to the east: a perimeter road along the access easement on the property to the east (Lot 22 DP 1071657), linking proposed internal Burrawong Drive to the extension of Belle O'Connor Street;
- to the south: internal Road No.3 (the southern extent of the Stage 1b) until further project-level approval is sought for Stage 1c, where the arrangement of a perimeter road will be examined further; and
- to the north: use of Belle O'Connor Street for Stage 1b, with the examination of a further access road with the application for the integrated housing precinct.

3.6

WATER SUPPLY

Water supply for fire fighting will be provided through the mains water supply. Additional access if possible to the Council water reservoir in the south of the site and the proposed stormwater detention pond in the north.

All dwellings within 100 metres of the hazard interfaces should be required to maintain metal 19mm garden tap fittings for potential use in reducing risk of damage to property in a bushfire.

Fire hydrants should be located through the subdivision such that a fire tanker can stand within 20 metres of the hydrant and utilise a 60-metre hose with a 10 metre water jet in accordance with NSW RFS and Building Code requirements.

3.7

CONSTRUCTION REQUIREMENTS

Building Construction requirements for the proposed development were assessed in accordance with *Table A3.3* of NSW Rural Fire Service (2001).

The following level of construction in accordance with AS3959-1999 applies to dwellings within proximity to the hazard interface:

- Level 3: any dwellings between 20m and 30m of the forest in the south of the site or the heath to the north of the site;
- Level 2: any dwellings between 30m and 50m from the forest in the south of the site or the heath to the north of the site; and
- Level 1: any dwellings between 50m and 80m from the forest in the south of the site or the heath to the north of the site.

This is indicated in the attached King & Campbell plan (2006). Due to APZ requirements, no dwellings are to be located within 20m of the hazard interface, and no proposed dwellings along the eastern boundary would be within the 30m distance requirement for Level 1 construction along this interface.

Dwellings in the remaining areas of the site do not require bushfire measures to be implemented during construction.

4

CONCLUSION AND RECOMMENDATIONS

It is considered that the proposed Stage 1b (Project approval) subdivision complies with the NSW RFS guidelines (2001).

Development of Stage 1c can be undertaken to meet the guidelines, subject to adoption of specific bushfire hazard reduction measures.

The following hazard reduction and risk management measures are required for the development:

- formalisation of asset protection zones to identified hazards in the north, east and south, including easement creation on Lot 22 to the east;
- provision of vehicular access to each hazard interface, as described above;
- use of 19mm metal tap fittings and provision of water supply points to residential areas; and
- the construction of dwellings to the appropriate Level of Construction in accordance with AS3959-1999, relative to the distance of the dwelling site to the nearest hazard.

REFERENCES

NSW Rural Fire Service (2001) *Planning for Bushfire Protection - A Guide for Councils, Planners, Fire Authorities and Home Owners*.

Standards Australia (1999) AS3959 – 1999, *Construction of buildings in bushfire-prone areas*.